LCDR Edward "Iceberg" Smith, '13

and the 1931 Arctic Expedition of the German Airship Graf Zeppelin

by William H. Thiesen, USCG Atlantic Area Historian

It was a magical journey, this Arctic cruise of 8,000 miles in 136 hours! In the kaleidoscope of swiftly moving scenes the highlights of our voyage seemed like flashes upon the screen, so quickly was one impression replaced by the next.

In the above quote, Coast Guard officer LCDR Edward "Iceberg" Smith, '13, described in a journal article his enthusiasm for an important Arctic expedition in the German airship Graf Zeppelin. Of the approximately forty crewmembers on board the zeppelin, Smith was one of only two American participants and the only member of a U.S. military service involved in the venture.

LCDR Smith with the other American expedition member, polar explorer Lincloln Ellsworth

Edward H. Smith graduated from the Revenue Cutter Service Academy in 1913. He was born and raised on Martha's Vineyard and descended from a family long associated with whaling and the sea. Like several 1913 graduates, such as pioneer aviator Elmer F. Stone and World War I hero Fletcher W. Brown, Smith enjoyed a distinguished and interesting career in the Coast Guard.

Early in his career, Smith served on board several cutters, including the Manning, which performed convoy duty in World War I. It was in 1920 that he received assignment to the cutter Seneca and the International Ice Patrol, the internationally-funded iceberg tracking agency run by the Coast Guard. At this point, Smith developed a life-long interest in oceanography and the Arctic, and became known as "Iceberg" Smith. For the next decade, Smith engaged in the scientific study of iceberg formation at Harvard University and on board cutters, such as the Marion, on which he performed a 1928 survey of the most important iceberg-producing regions in West Greenland. In recognition of his scientific studies, Harvard awarded him a master's degree in 1924 and a Ph.D. in geologic and oceanographic physics in 1930. He was the first Coast Guard officer known to receive a doctoral degree and became recognized as an international authority on Arctic ice.

The Graf Zeppelin's scientific staff invited Smith to join the expedition as a representative for the International Ice Patrol and to serve as the project's expert on ice and oceanography. For Smith, the Graf Zeppelin Expedition proved a combination of Arctic exploration and

Graf Zeppelin hovering over the crowd at Berlin

Indiana Jones-style adventure. On one hand, the zeppelin served as a platform to support Germany's space-age scientific equipment, including a geomagnetic laboratory, a nine-lens panoramic mapping camera, and small hot-air balloon weather-sensing probes. On the other hand, members of the German Foreign Office saw the expedition as a way to strengthen German-Soviet ties and to claim previously uncharted lands to show the world that Germany had not renounced its post-World War I extra-territorial aspirations.

Smith must have marveled at the airship's technology and appointments. It boasted a navigation station equal to any contemporary sea-going vessel, meteorological equipment for predicting local pressure systems at least three times a day as well as smokeless cigarettes and frost proof fountain pens. During the expedition, Smith would be passing over some of the most forbidding lands on earth from the comfort of an electrically heated cabin with picture windows to view the frigid landscape below. Smith enjoyed the relative silence and comfort unknown in his own sea-going expeditions or the frozen struggles carried out by earlier ice-bound explorers.

As dawn broke on Friday, July 24th, Iceberg Smith and his airshipmates embarked the zeppelin in its hangar at Friedrichshafen, Germany, and its 300-man ground crew walked the airship to its take-off point. By 8:35 a.m., the zeppelin was on its way to Berlin, where it arrived at 6:00 p.m., circled the city several times for the benefit of local spectators and set down at Templehof Field for the night.

The next morning, Graf Zeppelin began the first leg of its journey with a flight to Leningrad by way of Helsinki, Finland. Soviet fighter aircraft met the airship at the Russian-Finnish border to escort the zeppelin around sensitive coastal defense installations and on to Leningrad. After Graf Zeppelin landed at Leningrad's Commandant Aerodrome, Smith and the rest of the crew received an official welcome by local Soviet leaders and enjoyed

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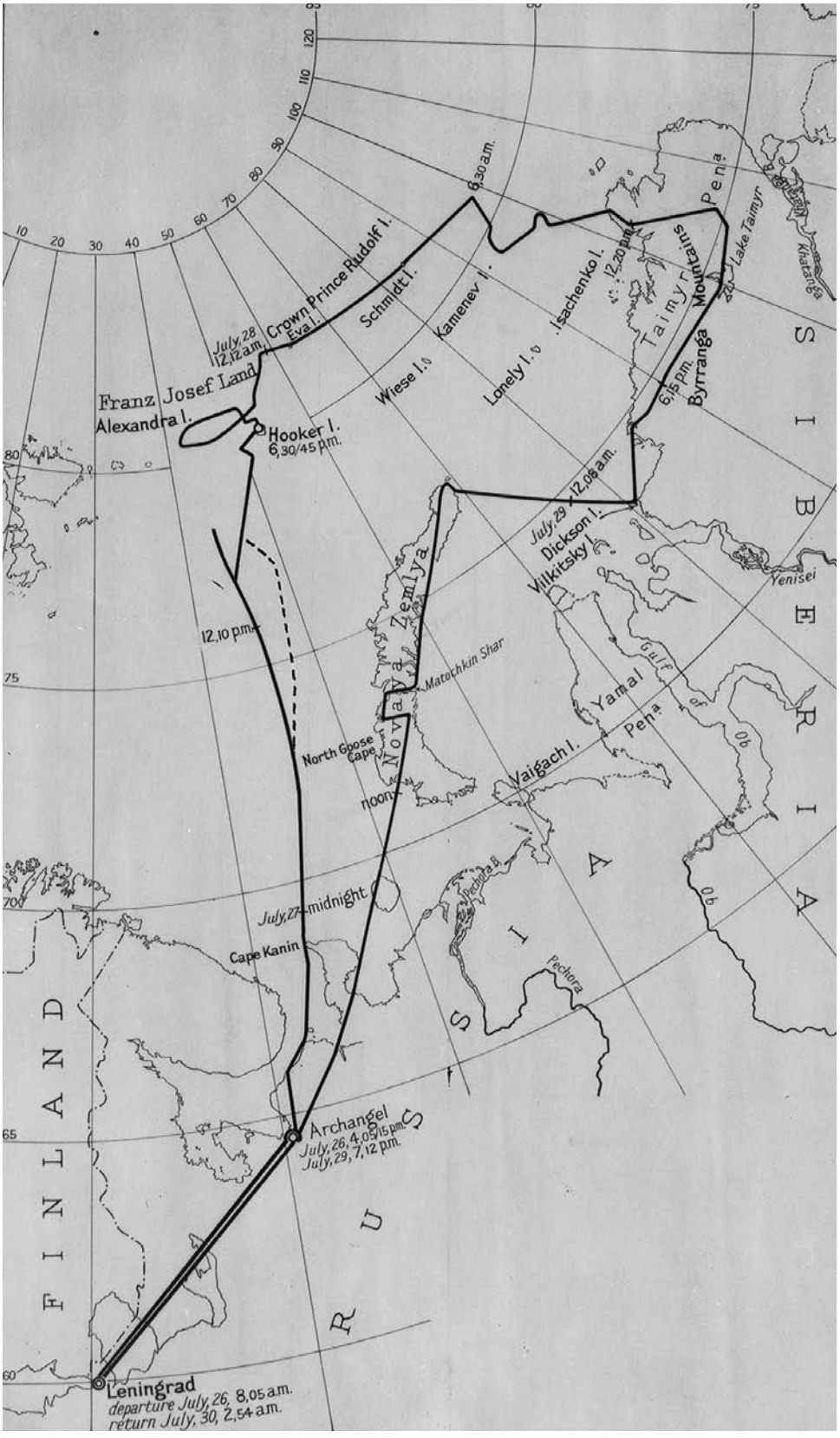
Track chart of LCDR Smith's 8,000 mile flight on board the Graf Zeppelin



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a lavish banquet. That evening, fuel, stores and hydrogen gas were topped off and Soviet members of the expedition stowed their gear on board.

In the morning of Sunday, July 26th, Smith and the airship's complement of scientists and airship crew were ready to begin their 8,000-mile aeroarctic journey. Graf Zeppelin proceeded from Leningrad over the port city of Archangel and the White Sea, at altitudes between 500 and 1,500 feet, before heading due north through the Arctic Circle and over the open water of the Barents Sea. As the airship flew farther north, the temperature dropped from sixty degrees to fifty to nearly freezing. And the open water began to exhibit ice patches, then floes of ice and finally a solid sheet of ice.

Graf Zeppelin flew over the Barents Sea from Sunday evening through most of Monday. By 4:30 p.m., on Monday, July 27th, Smith and the crew first sighted islands of the Franz Josef Land group, making landfall at the glacier covered headlands of Cape Flora. Graf Zeppelin continued on to nearby Hooker Island, site of the most northerly meteorological observatory, and rendezvous point with the Soviet icebreaker Malygin. At 5:00 p.m., the airship descended to the water's surface and Malygin sent out a boat with naval officers and meteorologists. The boat and zeppelin exchanged post bags full of mail with unique German North Pole stamps cancelled using an exotic postmark on board the airship. The postmarked mail was returned to the U.S.S.R., where it was sent back to philatelists in Germany. The meeting between the zeppelin and boat proved brief as ice floes drew dangerously close to Graf Zeppelin's low-hanging gondola.

After the rendezvous with Malygin, Graf Zeppelin continued to the northeast to photomap the rest of Franz Josef Land. The survey of this island group revealed several features not seen from ground level, including new islands and peninsulas previously believed to be islands. A Russian scientist on board the zeppelin estimated that three hours of aerial mapping represented about four summers of land survey work by a ground party.

At midnight on Tuesday, July 28th, Graf Zeppelin attained the highest latitude of its trip at 81° 50′ N, 565 miles south of the North Pole. German insurance firms would not cover accidents or mishaps north of latitude 82° N due to the treacherous conditions and odds against rescue between that latitude and the pole. From the expedition's most northerly point, Smith noted: "Here was one of the most beautiful scenes of the trip, looking northward towards the midnight sun, then just below the horizon. All objects appeared to be bathed in the soft and mellow light except where a golden reflection shone brightly along a glittering, icy path between us and the pole."

From Franz Josef Land, Graf Zeppelin flew 300 miles east to the island of Severnaya Zemlya. During the flight, LCDR Smith witnessed unusual formations in the sea ice, including smoothly polished ice disks one to two miles in diameter, and patches of brown, green and yellow color caused by algae in pools of

The expedition's state-of-the-art balloon sensor probe. The balloon dropped clear of the airship before ascending into the atmosphere to avoid getting caught in the zeppelin's motors

melt water. As the airship approached the island, Smith found that the sea ice formed a continuous run from glaciers flowing down from Severnaya Zemlya's northern headlands.

After arriving at the island, Graf Zeppelin assumed an altitude of 4,000 feet to begin its photographic survey. While the island's shoreline had been charted from a Russian icebreaker in 1914, most of the land mass had never been seen by man. The survey of the large island revealed that it was actually two islands separated in the center by a wide channel and Smith noticed little vegetation and no evidence of animal life on its barren surface.

From Severnaya Zemlya, Graf Zeppelin crossed the Vilkitski Strait to the Taimyr Peninsula, where the white ice and snow of the islands gave way to the dark earth colors of tundra. The crew discovered a new uncharted mountain range and Smith saw the trip's first animal life, including large waterfowl as well as herds of reindeer, which scattered in every direction as the airship drew near. The zeppelin took two hours to reach Lake Taimyr, a distance that took previous land-bound expeditions a month to cover on foot. Graf Zeppelin's scientists conducted a complete camera survey of the lake, mapping many features never known or charted before.

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From the Taimyr Peninsula, the zeppelin expedition crossed the Kara Sea on its way to the massive island of Novaya Zemlya. Graf Zeppelin passed over pack ice most of the flight over the Kara Sea until open water appeared for a few miles around the island. The zeppelin arrived at the northern tip of the island and ascended to about 4,000 feet to begin a photographic survey along its length. Smith witnessed the island's mountainous landscape, covered by snow and ice and punctuated by glaciers calving hundreds of icebergs into local waters.

View of the icy landscape seen by Iceberg Smith from the comfort of Graf Zeppelin's gondola

From Novaya Zemlya, Graf Zeppelin flew straight over Archangel and continued on to Germany. The zeppelin was scheduled to stop in Leningrad, but those plans were shelved and the zeppelin proceeded directly to Berlin. The airship stopped for half-an-hour in Berlin then returned to its hangar at Fredrichshafen at 5:00 a.m., on Friday, July 31st.

Despite the inability to fly north of latitude 82° N, the expedition proved an unqualified success. In only 136 hours of flight, Graf Zeppelin had passed over vast regions never seen by the human eye and discovered new landforms, such as islands, mountain ranges and coastal features. The zeppelin also photographically surveyed large parts of the Russian arctic that had never been mapped. In presaging the use of aviation in the modern International Ice Patrol, Smith ended his journal article by concluding that aviation would prove essential to the Coast Guard's mission of monitoring iceberg production in Arctic waters.

The 1931 Graf Zeppelin Expedition proved one of the most successful ventures in the history of German polar exploration, but it was never tried again. The poles had remained one of the final frontiers of human exploration prior to man's journey into space and the Graf Zeppelin showed that polar exploration could be accomplished safely and comfortably with the aid of airship technology. However, the zeppelins no longer ventured into the polar regions after Adolph Hitler's National Socialist Party replaced Germany's Weimar Republic in the early 1930s.

Iceberg Smith continued to work on ice-related missions after completing the Graf Zeppelin expedition. He went on to a distinguished Coast Guard career, commanding cutters in Alaska and later, assuming command of the International Ice Patrol. During World War II, he commanded the Greenland Patrol, the Coast Guard command responsible for the Greenland theater of operations. In 1950, Smith retired as a rear admiral and became the director of the Oceanographic Institution at Woods Hole, where he served for six years before retiring a second time. He passed away in 1961 and was buried near his childhood home at Martha's Vineyard.

Dr. Thiesen received a Master's degree from East Carolina University's Program in Maritime History and earned a Ph.D. from University of Delaware's Hagley Program in the History of Technology and Industrialization. His research interests include Coast Guard history, naval history, ship design and construction, and the history of technology.